

9-3 Dividing Fractions

Anticipatory Set:

Give the students a quick review on previously learned concepts.

1. Lola has a recipe that calls for $3\frac{1}{4}$ cups of flour. If she needs to quadruple her recipe, how many total cups of flour will she need?
2. On Monday the high temperature was 78° , today the high temperature will be 62° , what is the difference between the two temperature?
3. David wants to purchase the same number of hotdogs as buns. Each hotdog package has 8 hotdogs, however each bun package has 10. How many packages of each will he need to purchase if he were to have an equal amount of hotdogs and buns without extras.
4. Give the prime factorization of 81.
5. Give three equivalent fractions for $\frac{2}{3}$.

Building a Foundation:

Joey has $\frac{3}{4}$ of a cup of milk. He wants to pour it into $\frac{1}{4}$ cup containers. How many containers can he fill?

Assuming that students are familiar with dividing fractions. Ask students to identify how they would solve this problem. What operation/s would they use? Have students write step-by-step instructions that a fifth grader could understand. Have them include visuals and examples. If they do not have any idea how to do the problem have them replace the fractions with whole numbers to see if the problem makes more sense.

As a group discuss which words were used in their examples. Discuss why they were used and why they are important. Highlight three vocabulary words quotient dividend and reciprocal.

Using the Frayer Model, model how to fill in information for the word, reciprocal. Students will then fill out two more vocabulary sheets.

Example:

Definition: Two numbers whose product is 1.	Characteristic and Model: Joey has $\frac{3}{4}$ of a gallon of milk. He wants to pour it into $\frac{1}{4}$ gallon containers. How many containers can he fill? $3/4 \div 1/4 =$ $\frac{1}{4} \text{ ----- } 4/1$
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Reciprocal

Examples:	Non -examples:
$\frac{1}{8}$ ----- $\frac{8}{1}$, $\frac{3}{5}$ ----- $\frac{5}{3}$ $-\frac{1}{2}$ ----- $-\frac{2}{1}$	

Concrete:

Students will be able to concretely demonstrate how to solve the following problem/s.

Joey has $\frac{3}{4}$ of a cup of milk. He wants to pour it into $\frac{1}{4}$ cup containers. How many containers can he fill?

Alaina has $2\frac{1}{2}$ cups of flour. Her recipe calls for $\frac{1}{2}$ cup of flour. How many recipes can she make with the flour she has?

Seth has $1\frac{1}{2}$ Hershey bars. He needs to give each friend $\frac{1}{4}$ of a bar for a S'More. How many friends can he give it to?

Materials:

Measuring cups
 Plastic knives
 Paper towels
 Gallon of milk
 Package of flour
 Hershey bars (plain chocolate divided into eighths)
 Large paper cups

Procedure:

Set up centers containing: 3 cups of flour in a baggie, set of measuring cups, a plastic knife, paper towel, 1 cup of milk in a paper cup, 2 Hershey bars,

Students will work with group of three to four members to solve the problems. They are to use the materials to solve the problem.

Students will fill out the graphic organizer as they solve their problems.

Students will draw pictorial representations demonstrating how they solved their problems.

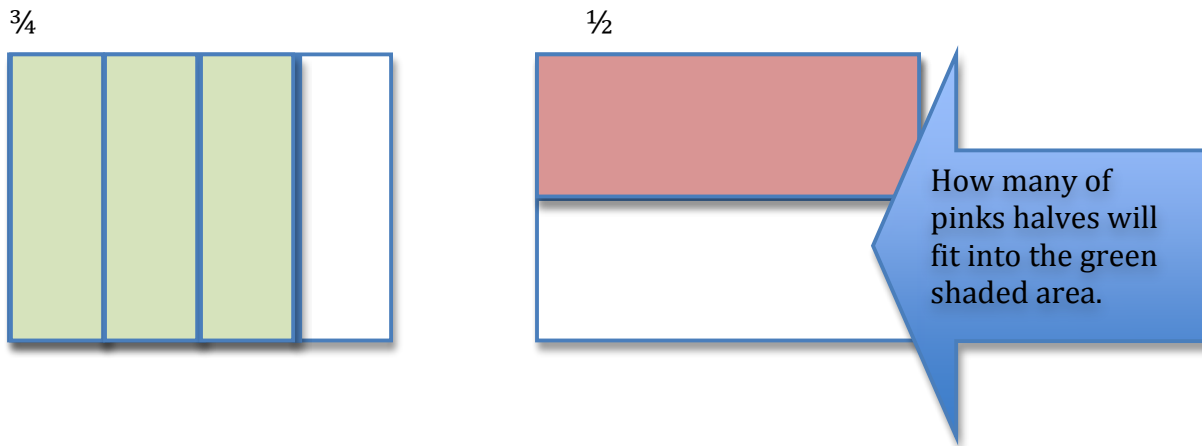
Teacher will rotate around the room and give support as needed.

Students will write their own word problems to share with other groups.

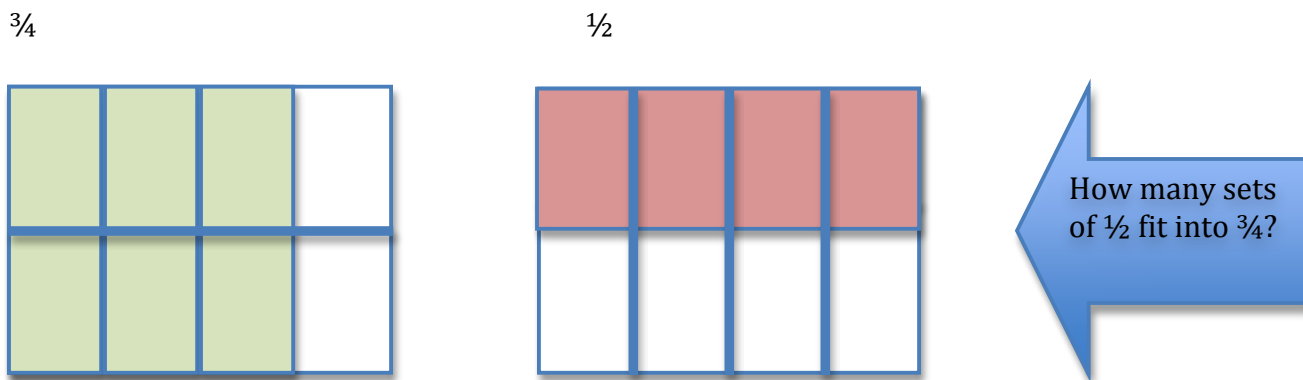
Representational: Model how to divide fractions by using graph paper.

Example: $\frac{3}{4} \div \frac{1}{2}$

Ask students how many $\frac{1}{2}$ s fit into $\frac{3}{4}$? Draw a picture representing $\frac{3}{4}$ and $\frac{1}{2}$. Have students draw the first fraction using vertical lines and the second fraction drawing horizontal lines.



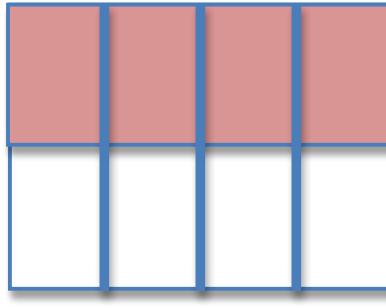
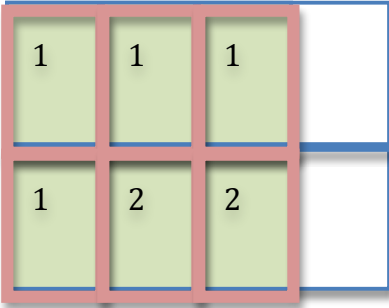
To do this you need to draw each of the fractions with the same denominator, otherwise you cannot compare them. Draw the same lines on the $\frac{3}{4}$ as you did on the $\frac{1}{2}$. Now your $\frac{3}{4}$ is $\frac{6}{8}$. Draw the same lines on the $\frac{1}{2}$ as you did on $\frac{3}{4}$, now your fraction is $\frac{4}{8}$.



You need 4 pink squares per whole. So how many sets of pink squares fit in the green space?

$$\frac{3}{4}$$

$$\frac{1}{2}$$



There are $1\frac{1}{2}$ sets of pink squares that you can fit into the green boxes.

Give the students one more problem to draw on their own.

After students have explored and drawn pictures, start working on the algorithm.

Independent Practice:

After students have explored and drawn pictures, introduce the algorithm.

Show students the same problem : $\frac{3}{4} \div \frac{1}{2} =$

Students already know the answer, have them work in pairs to try to discover the algorithm. Give them 3-5 minutes and discuss as a class.

Explicitly teach the algorithm and discuss how it works.

Do several practice problems together from Envision guided-practice.

Students will work independently on the 9-3 Practice sheet for 15 minutes. Students will work on all of the problems.

Teacher will go over the sheet to check for understanding.

Formative Assessment:

Students will do the Quick –Check on Senteo clickers, the clickers provide immediate feedback.

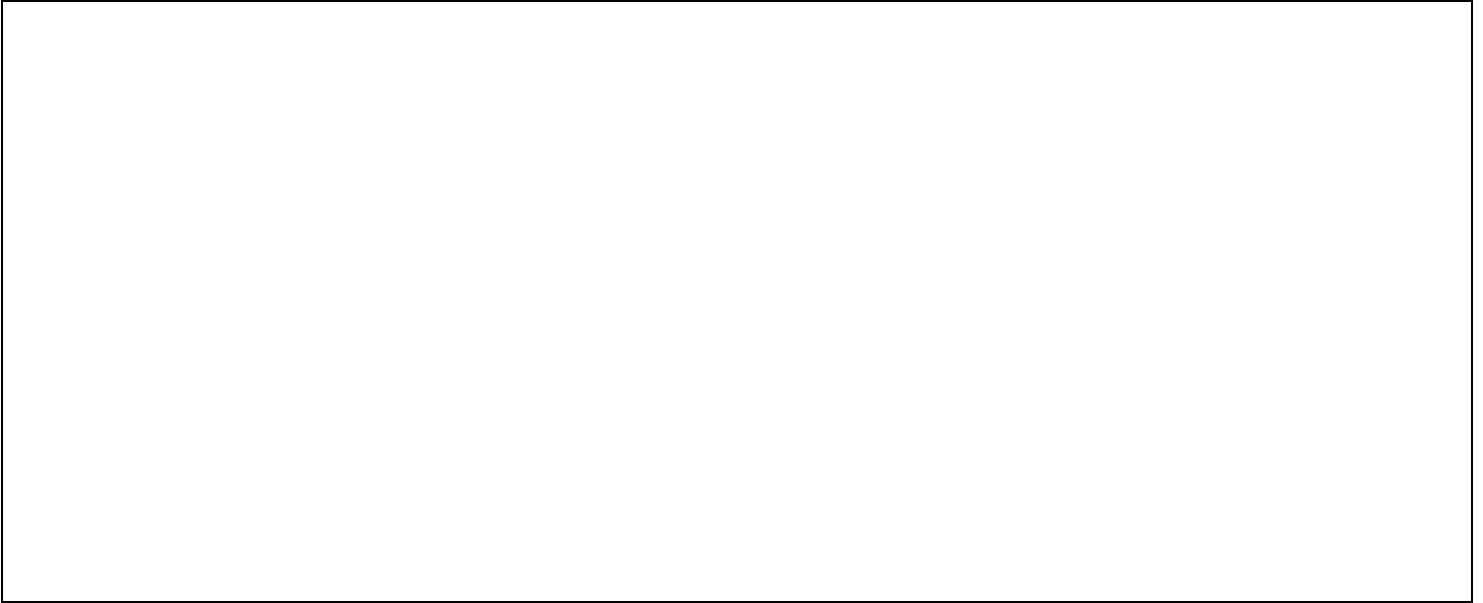
Problem Solving

Name: _____

1. Joey has $\frac{3}{4}$ of a cup of milk. He wants to pour it into $\frac{1}{4}$ cup containers. How many containers can he fill?

Solve:

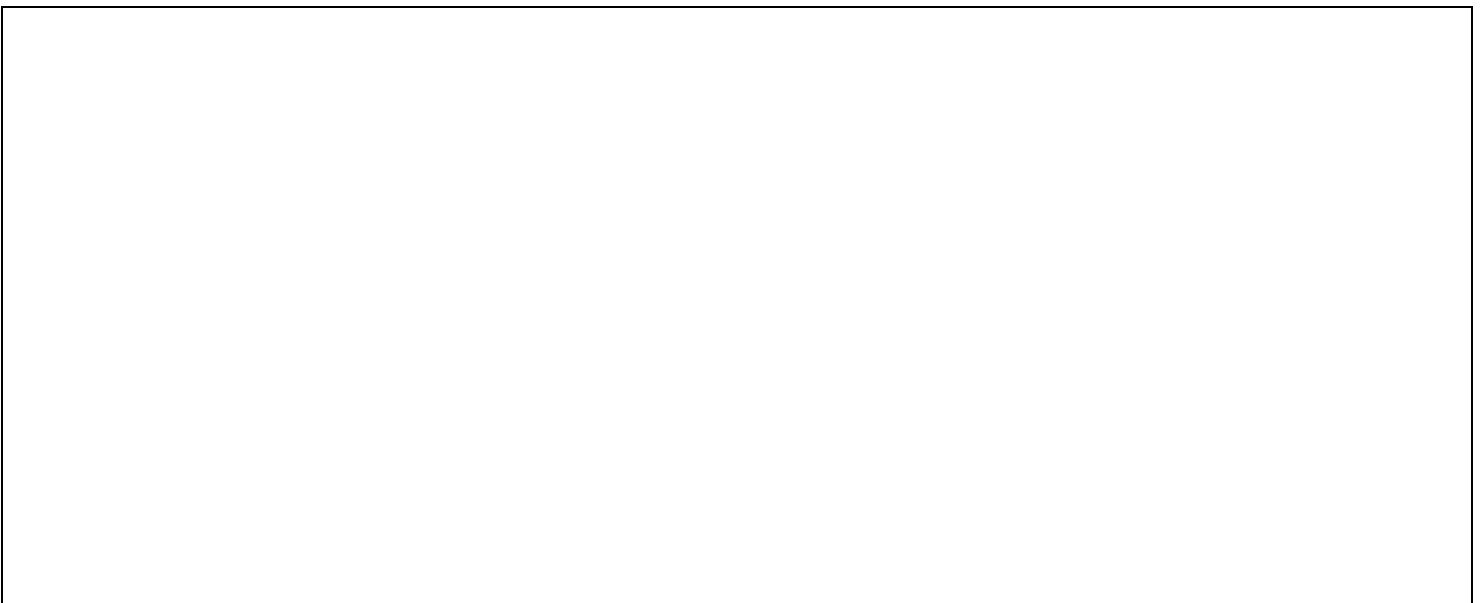
Draw a picture demonstrating how you solved the problem.



Alaina has $2\frac{1}{2}$ cups of flour. Her recipe calls for $\frac{1}{2}$ cup of flour. How many recipes can she make with the flour she has?

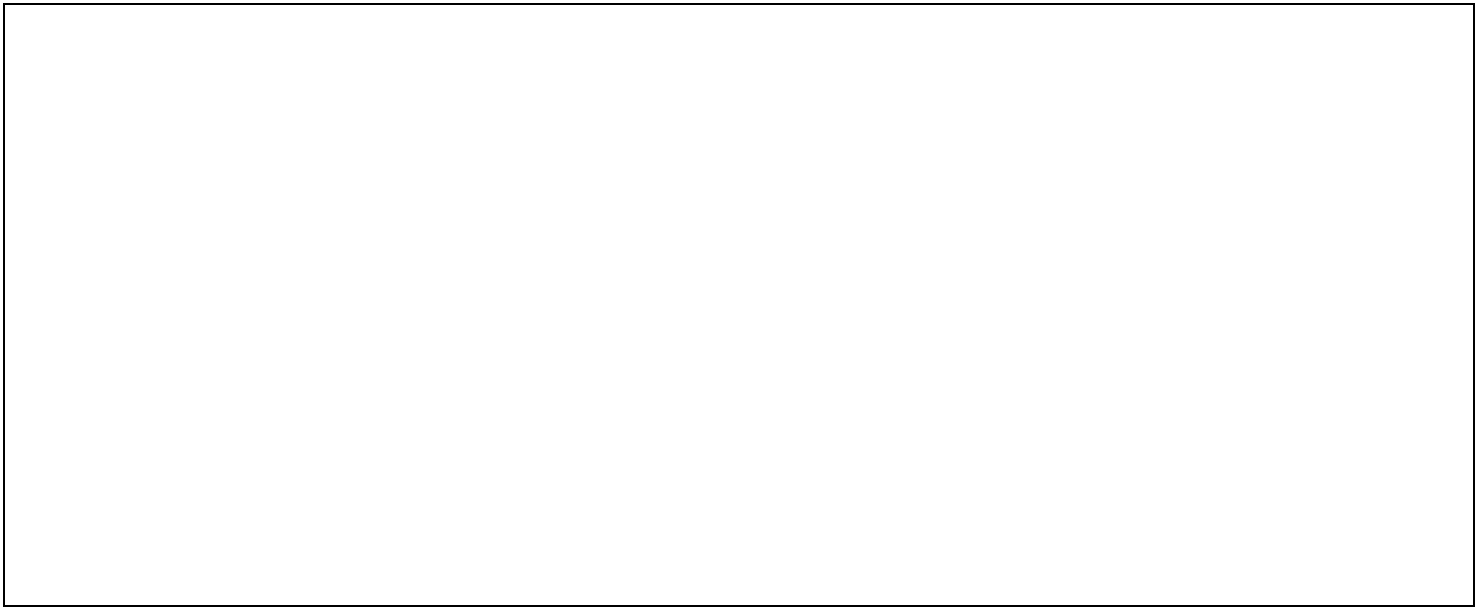
Solve:

Draw a picture demonstrating how you solved the problem.



Seth has $1\frac{1}{2}$ Hershey bars. He needs to give each friend $\frac{1}{4}$ of a bar for a S'More. How many friends can he give it to?
Solve:

Draw a picture demonstrating how you solved the problem.



Write your own story problem to share with another student. You may make a problem using the materials already provided.
